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UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

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PROCUREMENT AND SYSTEMS  
ACQUISITION DIVISION

B-197932

JUNE 5, 1980

The Honorable Neil E. Goldschmidt  
The Secretary of Transportation



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Dear Mr. Secretary:

Subject: [Development Status of the Rapid Transit/System  
of Metropolitan Dade County, Florida]  
(PSAD-80-49)

We have reviewed the development status of the fixed-guideway rapid transit system of Metropolitan Dade County (MDC), Florida. Project development is proceeding with capital assistance grants from the Urban Mass Transportation Administration (UMTA) authorized under section 3 of the Urban Mass Transportation Act of 1964. MDC estimates its project will cost \$866.8 million of which UMTA is providing \$670.4 million, the Federal share of the approved project cost.

This report identifies significant cost increases and a problem with the project development sequence on the Miami project which will require close coordination between UMTA and MDC. Because MDC has been concentrating on the acquisition of properties for its right-of-way toward the southern part of its line and starting construction at that point, it has not acquired many parcels for the north line section. If those parcels are not acquired according to schedule, that section of the line will not be constructed in a timely manner to allow cars access to the entire line from the maintenance and test track facility areas. We are making several recommendations which we believe will avoid or minimize delays in achieving this objective.

This report also shows that MDC has increased its estimated cost of the system by \$71.8 million and slipped its starting date 16 months from March 1983 to July 1984. However, from information we obtained, it appears that the MDC cost estimate is still understated by \$81.4 million with further cost increases possible for such reasons as cited in the previous paragraph.

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Our review was conducted at UMTA headquarters, Washington, D.C.; its regional office in Atlanta, Georgia; and at MDC, Florida. We reviewed applicable records and interviewed UMTA and local transportation officials concerning project planning, development, and cost and schedule estimates. Although we reviewed the areas covered by internal auditors at MDC, they did not cover any of the areas on which we are reporting. They had been primarily concerned with pre-award survey.

#### BACKGROUND

On December 14, 1977, UMTA approved a 20.5-mile rapid rail system for MDC and Federal funding up to \$632 million. This is the stage I phase of the project. The approved MDC system is a fixed-guideway, elevated, heavy rail system, which extends north from Dadeland South to Hialeah. The stage I system includes 20 stations, the maintenance yard, and shops at Hialeah, which are large enough to accommodate the railcars for the proposed entire 48-mile system. A total of 136 railcars will be bought under stage I.

UMTA is entering into a full-funding contract with MDC, which identifies the total estimated stage I project cost at \$866.8 million, of which the Federal funding share will be \$670.4 million. Additional Federal funding is limited to extraordinary costs due to

- inflation in excess of the contract estimate;
- real estate costs due to eminent domain damages and approved administrative settlements;
- Federal legislation after July 1, 1978, if UMTA concurs that the increase is due to such legislation;
- Federal funding delays; and
- acts of God.

The MDC project is under the supervision of the transportation coordinator, Office of Transportation Administration, MDC, who reports directly to the county manager and the Board of County Commissioners. MDC contracted with a general engineering consultant, Kaiser Transit Group, for architectural, engineering, procurement,

and construction activities. MDC is handling real estate acquisition activities and also provides project oversight and management.

CURRENT PROJECT STATUS  
AND POTENTIAL PROBLEMS

Since UMTA project approval in December 1977, MDC's cost estimate has increased about \$71.8 million to the February 1979 estimate of \$866.8 million. Also, the scheduled revenue operations date has been extended 16 months from March 1983 to July 1984. These are the most current official total cost and schedule completion estimates even though some more recent individual cost and schedule adjustments have been made. MDC's cost estimate, however, is still understated about \$81.4 million, and further cost increases are possible because of potential schedule delays which are likely to occur.

Project cost changes between  
December 1977 and April 1979

Since preparing its system cost estimate in December 1977, MDC has recognized estimated cost increases of \$44.3 million and \$71.8 million. However, information we obtained indicates that the cost estimate is understated by another \$81.4 million.

Most of the \$44.3 million increase was offset by reductions to the project scope and program reserves which are set up for another purpose; that is, to cover unexpectedly high procurement costs of supplies and equipment and unforeseen construction costs. Examples of items that accounted for most of the \$44.3 million increases and reductions are as follows:

- Increase of \$17.9 million for design changes, including new parking areas, rail line, and traction power.
- Increase of \$21.1 million for a 2-month schedule slippage caused by rearranging some contract completion dates, thus changing the contract midpoint which is a factor in calculating inflation.
- Net increase of \$5.2 million to correct earlier underestimates for right-of-way acquisitions and for design changes to the system power supply.

- Net reductions of \$22 million for items such as parking spaces and landscaping around stations.
- Reductions of \$22.1 million to the program reserve amount to offset some of the cost increases.

In February 1979, following a study to determine the effect of reduced funding levels from UMTA, MDC extended its completion schedule 14 months and increased its project cost estimate by \$71.8 million to \$866.8 million. The increase consists of:

- \$19.4 million for inflation to update estimates from June 1978 costs to January 1979.
- \$33.8 million for inflation due to reprogramming to later time periods over \$250 million of construction and procurement activities.
- \$18.5 million to increase the program reserve account from 7.5 percent to 10 percent of estimated construction and procurement costs. (According to MDC, the higher percentage represents the norm and was considered necessary because the revised project schedule is substantially longer and presents a greater degree of risk and uncertainty.)

Also, in February and again in April 1979, MDC increased other items in its cost estimate by \$16.5 million but did not increase the total project cost estimate, choosing instead to offset such increases by reductions to its program reserve account. These offsets are inappropriate since the program reserve account was established to provide for construction and procurement contingencies.

From information we obtained, MDC's cost estimate is understated by about another \$81.4 million. There is an understatement of \$18.9 million in the program reserve account for reasons such as those discussed above, and we estimate that inflation will be about \$32.9 million more than expected. Also, we determined that rights-of-way will cost at least \$29.6 million more than estimated.

MDC currently estimates inflation at 7 percent per year, which is the maximum inflation prescribed by UMTA for cost estimating purposes. But the actual annual inflation rate was 9.8 percent from September 1978 to September 1979.

Assuming this rate continues, the latest cost estimate will reflect an inflation increase of \$32.9 million to \$115.3 million because of the higher inflation rate. MDC's transportation coordinator agreed that inflation is understated. Federal participation in costs that exceed the project cost estimate of \$866.8 million will be limited to extraordinary costs as defined in the full-funding contract, discussed on page 2. UMTA officials have also noted that the contract does not guarantee Federal participation in such cost overruns.

The right-of-way cost estimate is understated by about \$29.6 million. MDC has not updated this estimate since its general engineering consultant prepared it in March 1978. The estimate is based on tax assessment data marked up 50 percent on average to reflect market value. By comparing 28 percent of the approved appraisal amounts to the estimates contained in the April 1979 estimate, we projected a total right-of-way cost estimate understatement of \$29.6 million.

UMTA officials disagreed that the project cost estimate of \$866.8 million is understated by \$81.4 million and commented as follows. They were not concerned that MDC was using the program reserve account to offset increases in other accounts. They added that recent contract awards in amounts less than estimated indicate that the current reserve is sufficient for completing the project. As stated earlier, MDC officials felt that an amount equal to 10 percent of construction and procurement costs was necessary to provide for unexpectedly high costs. UMTA officials nevertheless believe this lesser amount to be adequate based upon some recent contract awards. However, we noted that a large number of contracts yet to be awarded could involve some unexpectedly high procurement costs of supplies and equipment and unforeseen construction costs, the purpose for which such a reserve amount was established.

UMTA officials stated that our estimate for inflation increases was made at a particular point in time and does not take into consideration the fluctuating inflation rate. They added that the March 1980 time frame showed the building cost index rate was about 7 percent. Our estimate does reflect an actual rate for the year ended September 1979 and assumes a continuation of such a rate through project completion. Based upon the actual condition of the economy, we believe that our calculation reflects a reasonable estimate of the understatement of MDC's estimate.

Concerning our comments that MDC's right-of-way estimate is understated, UMTA officials stated that a recent analysis showed the estimate to be reasonably accurate. Although we were not provided details of the analysis, we think it is appropriate to note that the experience UMTA cited as a basis for its conclusion did not involve properties acquired through the condemnation process. This not only could result in delays in the acquisition but in higher prices being paid. With such a large number of properties yet to acquire, it is not unreasonable to assume that the costs to be incurred will exceed the MDC estimate for this purpose.

Scheduled revenue operations date

Since December 1977, the scheduled revenue operation date for the MDC system has slipped 16 months from March 1983 to July 1984. The July 1984 date may also slip because MDC is placing emphasis on developing the system's south line before the north line. Further, any delays in the procurement of rail and the possible unavailability of the test track at the time of railcar delivery pose additional potential schedule problems.

Project development sequence may delay schedule

Timely completion of the north line is critical to the revenue operations date because free access to the entire line from the maintenance yard and test track facilities must be through the north line. Construction of several line segments on the north line will probably not be completed on time. Delays in certifying properties to be acquired already have caused the right-of-way acquisition schedule to overlap the bid and construction schedule on three critical north line segments, and experience has shown that such overlap can be costly. For example, by using the concurrent right-of-way acquisition and construction technique, the Metropolitan Atlanta Rapid Transit authority incurred additional costs of \$2.6 million because a construction contractor was unable to proceed as scheduled when Atlanta could not obtain title to some land before starting construction. Likewise, MDC may incur additional costs because of construction delays if contractors are delayed in gaining access to construction sites.

The following chart shows the revised right-of-way acquisition schedule as of November 1, 1979, and the

overlap between the scheduled construction start dates for the three north line sections.

<u>Line section</u>	<u>Right-of-way acquisition completion date</u>	<u>Construction contracts</u>	
		<u>Bid start date</u>	<u>Construction start date</u>
5B	May 1981	Feb. 1981	May 1981
6B	May 1981	Feb. 1981	May 1981
7B	May 1981	Nov. 1980	Feb. 1981

According to the right-of-way acquisition master schedule, MDC may require additional properties in line section 7B, which would also overlap in the same way. If these required properties cannot be acquired on schedule, the construction will also be delayed and, in turn, will delay the scheduled operation date.

According to MDC's real estate group, approximately 78 weeks is needed to acquire an average improved and occupied parcel. Under Florida law, however, MDC can acquire property after it has filed a declaration of taking and deposited with the court funds equal to the high appraisal. By filing the declaration of taking at the start of condemnation, MDC can exercise its quick-claim authority, thereby shortening the acquisition time frame to 68 weeks. However, 296 of the 364 private properties to be acquired for the MDC system are in the northernmost sections from Culmer Station to the Hialeah maintenance yard. On the basis of the average time required to acquire real property, we believe that MDC's right-of-way acquisition schedule is so constrained that it is unlikely that the large number of private properties necessary for constructing the north line can all be obtained within the scheduled time frame. If this occurs, construction start dates will slip and the beginning of revenue operations may also be delayed.

#### Procurement of rail and test track availability

A lack of responsive bids for fully heat-treated rail, which comprises about 65 percent of MDC's rail requirements, is causing schedule delays. MDC was aware of the potential problem in procuring rail at the time it solicited bids, but UMTA requires solicitation of bids before proceeding to negotiations. UMTA's experience with negotiated steel

procurements indicates that it could take 17 months from bid opening to notice-to-proceed. Only one bid, which was nonresponsive, was received when bids were opened in December 1979. Thus, based upon a 17-month period, the notice-to-proceed date could be delayed until May 1981. But MDC officials stated that this procurement could become critical if the notice-to-proceed is delayed beyond June 1980. Therefore, unless contract negotiations and UMTA contract approval can be accelerated, it is likely that the rail procurement will become critical and affect the scheduled start of revenue operations.

The availability of the test track facilities when railcar deliveries begin is also questionable. Because of late design criteria and right-of-way certification, MDC's revised schedule shows that right-of-way acquisition overlaps 3 months into the construction schedule. MDC did not adjust the construction schedule because of the need to complete the test track before the railcars are delivered. However, if construction is not accelerated, the test track may not be available in time for railcar deliveries.

CONCLUSIONS, RECOMMENDATIONS,  
AND AGENCY COMMENTS

We believe that the potential delays in the development of the MDC rapid rail system and the attendant potential cost increases show a need for more attention by UMTA and MDC management. Accordingly, we recommend that the Secretary of Transportation direct the Administrator, UMTA, to

- emphasize development on the MDC rapid rail system to the north section to minimize the potential delay in the scheduled revenue operation;
- coordinate closely with MDC in procuring rail to shorten the approval period for any negotiated procurements; and
- give particular attention, during its quarterly MDC project reviews, to those factors that may cause the Federal participation to exceed the amount in the full-funding agreement.

Agency comments and our evaluation

UMTA officials advised us that MDC is taking all possible actions to obtain rights-of-way and avoid construction delays on the northern sections of its rapid rail system. For example, they stated that the time frame for acquiring a parcel of property was down to 68 weeks. UMTA furnished no details about these acquisitions. While they agreed that the MDC schedule is tight, UMTA officials were confident that the acquisition schedule could be met in order to begin construction on schedule. UMTA officials did not comment on what would happen if MDC did not meet its schedule. Although we agree that the opportunity and authority are present to reduce the average time frame to acquire property, many of the large number of properties yet to be acquired are expected to involve condemnation, which should require more than the 68 weeks experienced for properties acquired otherwise.

UMTA officials advised us that they are coordinating closely with MDC on negotiated rail procurements. They also believe that the quarterly MDC project reviews which are made onsite enable them to be adequately aware of the project status.

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As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Director, Office of Management and Budget, and the Administrator, Urban Mass Transportation Administration.

Sincerely yours,



J. H. Stolarow  
Director